

Bellwork 3/11/13:

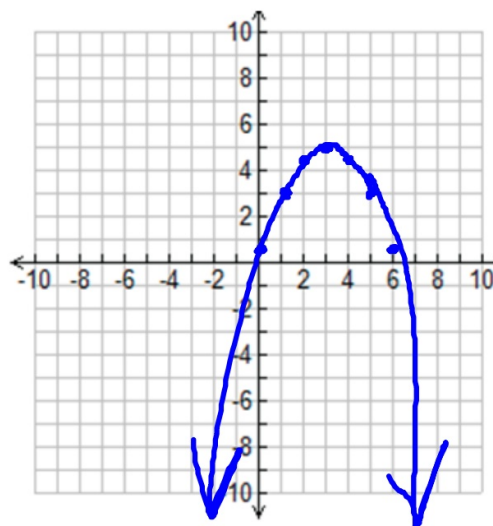
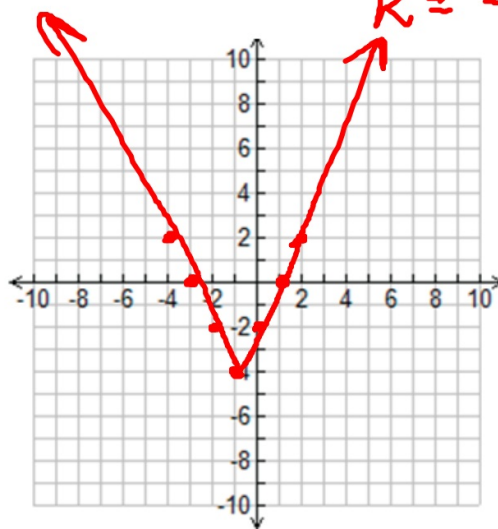
Graph the following functions:

$$\begin{aligned} a &= -\frac{1}{2} \\ h &= 3 \\ k &= 5 \end{aligned}$$

1) $y = 2|x+1| - 4$

$$\begin{aligned} a &= 2 \\ h &= -1 \\ k &= -4 \end{aligned}$$

2) $y = -1/2(x-3)^2 + 5$



Page 1

Section 5.9 - Graphing Cubics using Transformations

We are back to using a, h, k !!!

$$y = a(x-h)^3 + k$$

There is a big difference with graphing a cubic function - THE MOVEMENT IS NOT THE SAME ON BOTH SIDES!!

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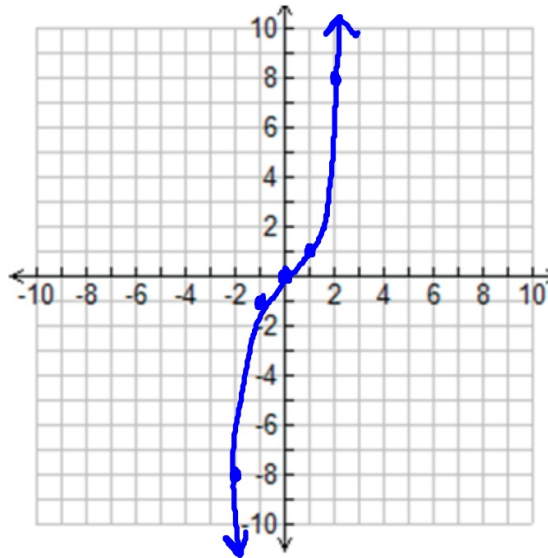
Graph each cubic function:

$$y = x^3$$

h, k
 $(0, 0)$

$$a = 1$$

right 1 up 1
left 1 down 1
right 2 up 8
left 2 down 8



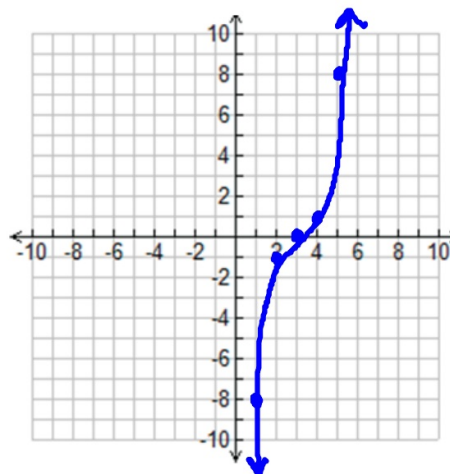
example 2:

$$y = a(x - \frac{h}{3})^3 \quad k$$

h, k
 $(3, 0)$

$$a = 1$$

right 1 up 1
left 1 down 1
right 2 up 8
left 2 down 8



example 3:

$$y = (x+2)^3 - 5$$

h, k
 $(-2, -5)$

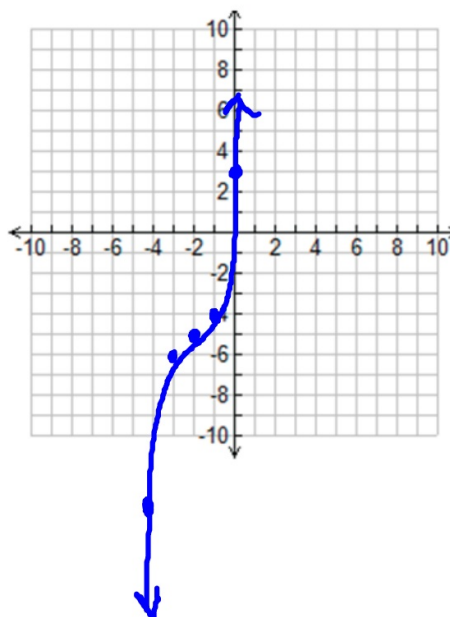
$a = 1$

R 1 U 1

L 1 D 1

R 2 U 8

L 2 D 8



example 4:

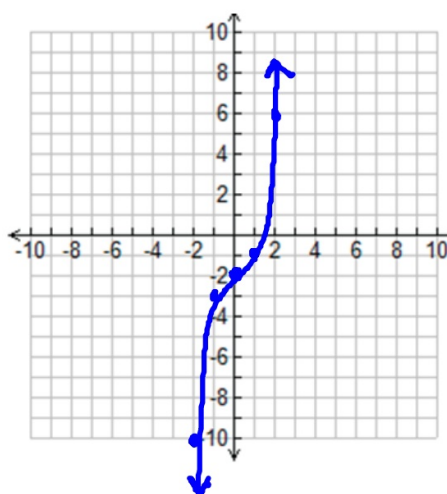
$$y = a(x-h)^3 - k$$

$$y = x^3 - 2$$

(h, k)
 $(0, -2)$

$a = 1$

↓ ↑



example 5:

$$y = 2x^3$$

$\begin{matrix} h & k \\ (0, 0) \end{matrix}$

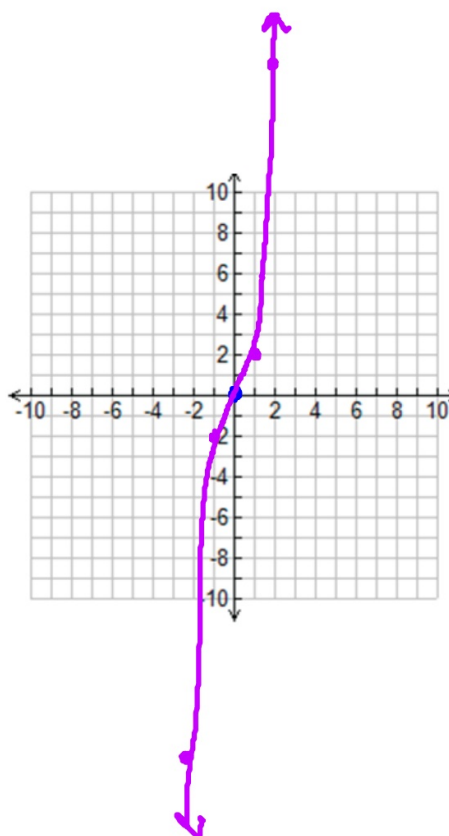
$$a = 2$$

right 1 up ~~2~~

left 1 down ~~2~~

right 2 up ~~8~~ 16

left 2 down ~~8~~ 16



example 6:

$$y = \frac{1}{2} x^3$$

$(0, 0)$

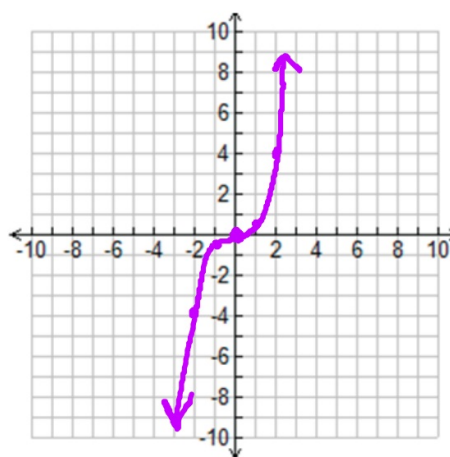
$$a = \frac{1}{2}$$

right 1 up ~~1/2~~

left 1 down ~~1/2~~

right 2 up ~~8~~ 4

left 2 down ~~8~~ 4

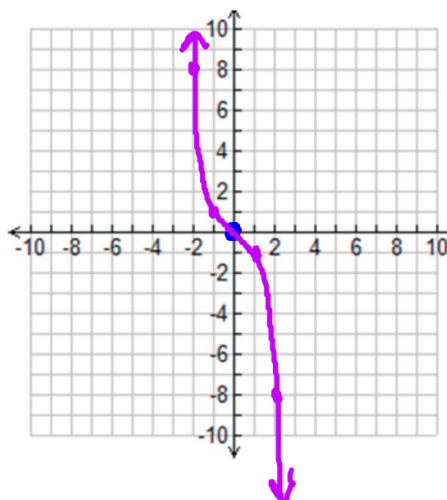


example 7:

$y = -x^3$ $\uparrow \downarrow$
 h, k
 $(0, 0)$

$a = -1$

right 1 ~~down 1~~ ~~up 1~~
 left 1 ~~down 1~~ ~~up 1~~
 right 2 ~~down 8~~ ~~up 8~~
 left 2 ~~down 8~~ ~~up 8~~



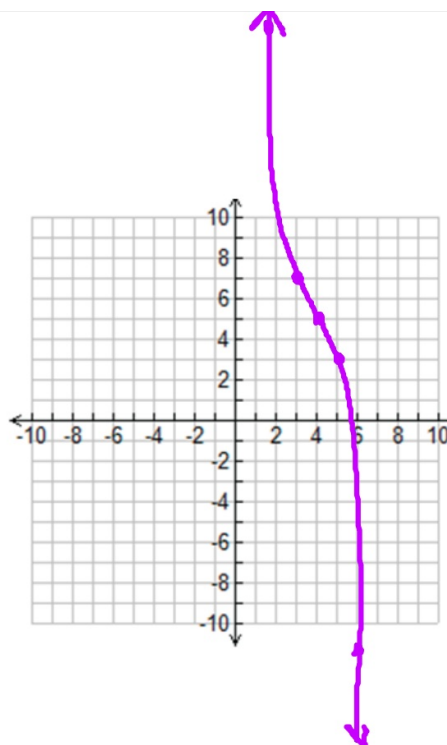
example 8:

$y = -2(x-4)^3 + 5$ $\uparrow \downarrow$ $\text{odd } \ominus$

h, k
 $(4, 5)$

$a = -2$

right 1 ~~up 1~~ ~~down 2~~
 left 1 ~~down 1~~ ~~up 2~~
 right 2 ~~up 8~~ ~~down 16~~
 left 2 ~~down 8~~ ~~up 16~~



Homework: Graphing Cubics Worksheet

